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Cont soldered by using solder, in particular lead-free solder, and an electronic apparatus such as a printer in which is installed the printed wiring board.--

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Please substitute the paragraph starting at page 1, line 18 and ending at line 22, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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A2 --Soldering has conventionally been carried out using eutectic lead solder (Sn-Pb: melting point 183°C), but in recent years there have been demands for soldering to be carried out using lead-free solder due to environmental restrictions.--

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Please substitute the paragraph starting at page 1, line 23 and ending at page 2, line 9, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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A3 --However, the high-temperature-type lead-free solders that are currently most commonly used are composed mainly of Sn and Ag, and have a melting point of about 220°C. If flow soldering of an inserted component is carried out using such a high-temperature-type lead-free solder, then solidification of the solder, which is accompanied by solidification shrinkage, proceeds from the vicinity of the inserted component, which has good thermal conductivity, towards the vicinity of the printed wiring board, and hence the solder joint interface at the part of the surface of the substrate on which the inserted component is mounted in particular becomes the final solidified part, resulting in lift-off and land peeling.--

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Please substitute the paragraph starting at page 2, line 10 and ending at line 21, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

Ad  
--Moreover, when flow soldering is carried out using lead-free solder as described above, segregation of Pb contained in the surface-treated leads of the inserted component and segregation of elements ( Bismuth, etc.) contained in the lead-free solder used in the flow soldering occur during the cooling process, and the physical properties of the solder changes during the cooling process. As a result, there is a problem that the occurrence of lift-off and land peeling is increased, and in the worst cases the land peeling is accompanied by breakage (i.e., electrical disconnection) of the pattern connected to the lands.--

Please substitute the paragraph starting at page 4, line 14 and ending at line 27, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

Ad  
--To attain the above object, the present invention includes a printed wiring board comprising a substrate having two opposite surfaces, a plurality of soldering through holes formed in the substrate, for inserting leads of an inserted component to be mounted onto the printed wiring board and soldering the inserted component onto the substrate, each of the through holes having an inner peripheral surface, and a plurality of lands each formed continuously across the opposite surfaces and the inner peripheral surface of a corresponding one of the through holes, each land having a surface, and means for

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maintaining at least a part of the surface of each of the lands in a state not wetted by solder.--

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Please substitute the paragraph starting at page 5, line 1 and ending at line 7, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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--In a preferred form of the present invention, the printed wiring board further comprises at least one wiring pattern provided on at least one of the opposite surfaces and connected to the lands, and wherein the means maintains connection portions between the lands and the wiring pattern in a state not wetted by the solder.--

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Please substitute the paragraph starting at page 5, line 12 and ending at line 13, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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A7  
--Alternatively, the material not wetted by the solder is a silk-screen pattern.

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Please substitute the paragraph starting at page 5, line 14 and ending at line 16, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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AB  
--Also alternatively, the material not wetted by the solder comprises a solder resist and a silk-screen pattern laminated onto one another.--

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Please substitute the paragraph starting at page 5, line 26, with the following line.

A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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--More preferably, the lead-free solder contains Bismuth.--

Please substitute the paragraph starting at page 8, line 11 and ending at line 19, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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--In FIG. 1, a plurality of through holes 5 are formed in a substrate 1 of the printed wiring board, and a land 6 is formed over an inner peripheral surface of each through hole 5 and opposite end surface parts of the substrate 1 formed with each through hole 5. Inserted component leads 2 of an inserted component 3 such as an electronic component are inserted into the through holes 5 and flow-soldered to the substrate 1 with lead-free solder.--

Please substitute the paragraph starting at page 8, line 20 and ending at page 9, line 6, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

A11

--A silk-screen pattern 4 is formed on a major surface of the substrate 1 on which the inserted component 3 is mounted, so as to cover the lands 6 (specifically an end surface of each land 6 on the major surface side of the substrate 1) that are formed on the through holes 5 for soldering the inserted component 3 mounted on the substrate 1. Note that silk-screen patterns (not shown in the drawings) that show the types, positions and numbers of components mounted on the substrate 1 and circuit diagram numbers are printed in

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predetermined positions on the major surface of the substrate 1, and the silk-screen pattern 4 is printed at the same time as these silk-screen patterns using the same ink.--

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Please substitute the paragraph starting at page 9, line 7 and ending at line 13, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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--As described above, a silk-screen pattern 4 is interposed between the lands 6 and the inserted component leads 2 on the surface part of the substrate 1 on which the inserted component 3 is mounted. As a result, it is possible to carry out flow soldering such that fillets 7 are not formed between the inserted component leads 2 and the lands 6.--

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Please substitute the paragraph starting at page 9, line 24 and ending at page 10, line 2, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

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--FIG. 2 shows a second embodiment of the present invention. The constitution of the printed wiring board in the present embodiment is the same as in the first embodiment, with one change that the lands 6 are covered with a solder resist 8 rather than a silk-screen pattern 4.--

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Please substitute the paragraph starting at page 10, line 19 and ending at line 24, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

AMP --FIG. 3 shows a third embodiment of the present invention. The constitution of the printed wiring board in the present embodiment is the same as in the first embodiment, with one change that the lands 6 are covered with both a silk-screen pattern 4 and a solder resist 8.--

Please substitute the paragraph starting at page 10, line 25 and ending at page 11, line 4, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

A13 --Even with this constitution, similar to the case of the first embodiment, because the silk-screen pattern 4 and the solder resist 8 are interposed between the inserted component leads 2 and the lands 6, it is possible to carry out flow soldering such that fillets 7 are not formed between the inserted component leads 2 and the lands 6.--

Please substitute the paragraph starting at page 13, line 9 and ending at line 13, with the following paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

AME --Moreover, the leads of the inserted component may have already been treated with lead solder, the printed wiring board may be, for example, a double-faced printed wiring board or a multi-layered printed wiring board, and/or the lead-free solder may contain Bismuth.--